

Lower North Fork
Clearwater River
Sub-basin
TMDL
Implementation Plan

Updated May 2004
by
Clearwater Soil & Water Conservation District

Lower North Fork Clearwater River Subbasin TMDL Implementation Plan

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Purpose

This implementation plan, developed by a Watershed Advisory Group (WAG), describes an approach to meeting requirements for pollution reduction set forth in the Lower North Fork Clearwater River Subbasin (LNFCRS) and TMDL. This will be accomplished by forest landowner voluntary application of a series of designed BMPs and the Clearwater Soil and Water Conservation District (CSWCD) administration of a grant with participation from the USFS, Idaho Department of Lands, the Clearwater Highway District, and Potlatch Corporation. Although nineteen streams are on Idaho's 303 (d) list for not meeting full support status for the designated beneficial uses, the grant related projects will only focus efforts and funding sources on seven streams that have a TMDL written. Targeted pollutants of concern as listed in the LNFCRS TMDL document are sediment, bacteria, and temperature.

In addition to grant related projects, this plan also includes several non-grant projects that have already been undertaken, with others planned, by the affected landowners. Collectively these projects will play a key role in addressing the nonpoint source pollution in the LNFCRS project area and will focus BMP implementation efforts on mostly forestland. Each stream listed for a TMDL has a pollutant load reduction associated with it. The loading analysis quantifies pollutant sources and allocates responsibility for load reductions needed to return listed waters to a condition of meeting water quality standards. The successful completion of these projects will ensure that these pollutant load reductions will be met and the "full support" status will be returned to these streams.

Plan Goals

The goal of the LNF Clearwater TMDL Implementation Plan is to focus on implementing BMPs to reduce sediment, bacteria, and temperature loadings to the seven listed streams within the LNFCRS. These BMPs will be monitored annually to determine if they are working toward "full support" status of the designated beneficial uses.

This plan will strive to meet its pollutant load reductions listed in the LNFCRS TMDL by:

1. Implementing an aggressive road transportation management plan aimed at reducing sediment transport to streams and tributaries to include:
 - road reconstruction (culvert upgrades, rocking, seeding, etc.)
 - road abandonment/obliteration (removal of culverts, cross-ditching, potential slides, seeding)
2. Reducing streambank erosion
3. Improving riparian and stream channel habitat
4. Decreasing bacteria loading to receiving waters
5. Reducing livestock concentrations on streams with off-site water developments
6. Adaptive management of riparian timber stands to better manage the temperature regime needed for fish habitat
7. Improving fish and wildlife habitat through better watershed management
8. Continuation of BMP effectiveness monitoring through the CWE process, photo documentation, routine FPA inspections, and periodic audits.

Background

The Lower North Fork of the Clearwater River Subbasin (LNFCRS) is 1,145.44 square miles, which is about the same size as the state of Rhode Island. Map A displays the general location of the LNFCRS and the location of the 303(d)-listed waterbodies. The basin is located in north central Idaho, primarily in Clearwater County, situation around Dworshak Reservoir with all streams flowing directly or indirectly into the reservoir. Dworshak Dam was completed in 1971, and the reservoir attained full pool two years later. At full pool the reservoir is 54 miles long, 2 miles across, and has a maximum depth of 480 feet. There is no passage for migrating fish at Dworshak Dam.

Elevations range from 1445 feet, which is minimum pool elevation of Dworshak Reservoir, to over 7,000 feet. Most elevations are within 3,000 feet to 5,500 feet and a large majority of the topography is of steep terrain with greater than 50% slope gradients. The streams in the basin have a pattern of low flows during the late summer and early fall months and high flows in the spring and early summer months. Over the past 100 years human activities, primarily silvicultural, have changed the landscape of the basin to a degree and these alterations are the primary reason TMDLs were developed for the LNFCRS.

Land Use

Timber harvesting has been the primary land use in this basin, as Potlatch Corporation, the Clearwater National Forest (CNF) and the Idaho Department of Lands (IDL) manage 87.5 % of the basin. Trends over the past 15-20 years show timber harvest activities decreasing while recreational activities, such as fishing, are increasing. Statistics show that 96.27% of the basin is forestland, 2.85% is open water, and 0.88% is dryland agriculture. There are many recreational uses, as the basin is a popular destination spot for all kinds of outdoor activities such as hunting, fishing, hiking, boating, and camping. There are several grazing leases in the central and southern portions of the LNFCRS. Excluding the larger timber companies like Potlatch Corporation, private landowners own only 2.7% of the basin. The remaining portion of the basin is federal or state land.

Climate

During the fall, winter, and spring cyclonic storms move towards the east and produce low intensity, long duration precipitation, which accounts for most of the annual precipitation. Prolonged gentle rains, deep snow accumulations at higher elevations with fog, cloudiness, and high humidity characterize the basin in the fall, winter, and spring. A seasonal snowpack generally covers the area from November to June. On rare occasions mild pacific air masses meet cold continental air masses producing heavy rainfall combined with rapid snowmelt. This phenomenon is called a rain-on-snow event. These events often occur mid-winter, outside the normal spring snowmelt. They lead to soil saturation; huge amounts of run-off, and can produce large amounts of sediment through erosion and mass wasting. Low to mid elevations, up to about 4,000 feet elevation, are the most susceptible to rain-on-snow in the subbasin, since above 4,000 feet most of the precipitation still falls as snow.

The climate during the summer months is influenced by high-pressure stationary systems. These warm, dry, summer systems result in less than approximately 15 % of the annual precipitation. These systems sometimes produce high intensity electrical storms, which cause frequent wildfires especially during exceptionally hot and dry summers. Hot summer temperatures are common at the mid to lower elevations in the LNFCRS and are the major factor influencing water temperatures. Air temperatures at the mid to lower elevations will exceed 90° F between 20-70% of the time in the July and August. A summary of this climate data is shown in Table1.

Table 1. Summary of Climate Data.

Station Name	Type	Elevation (ft)	Period of Record	Mean Annual Temp (°F)	Mean Annual Precipitation (inches)	# of Days > 90°F per year
Elk River	NWS	2918	1/1/52-12/31/00	43.9	37.6	13.4
Elk Butte	NRCS	5690	10/22/82-12/1/01	38.6	59.7	0.23
Headquarters	NWS	3138	6/1/59-12/31/00	43.3	40.1	13.4
Shanghi Summit	NRCS ²	4570	2/1/83-12/1/00	41.5	57.4	2.14
Orofino	NWS ¹	1030	8/01/48-12/30/81	51.6	25.3	54.0
Dworshak Fish Hatchery	NWS	1000	12/1/66-12/31/00	52.0	25.6	47.8

¹ NWS =National Weather Service

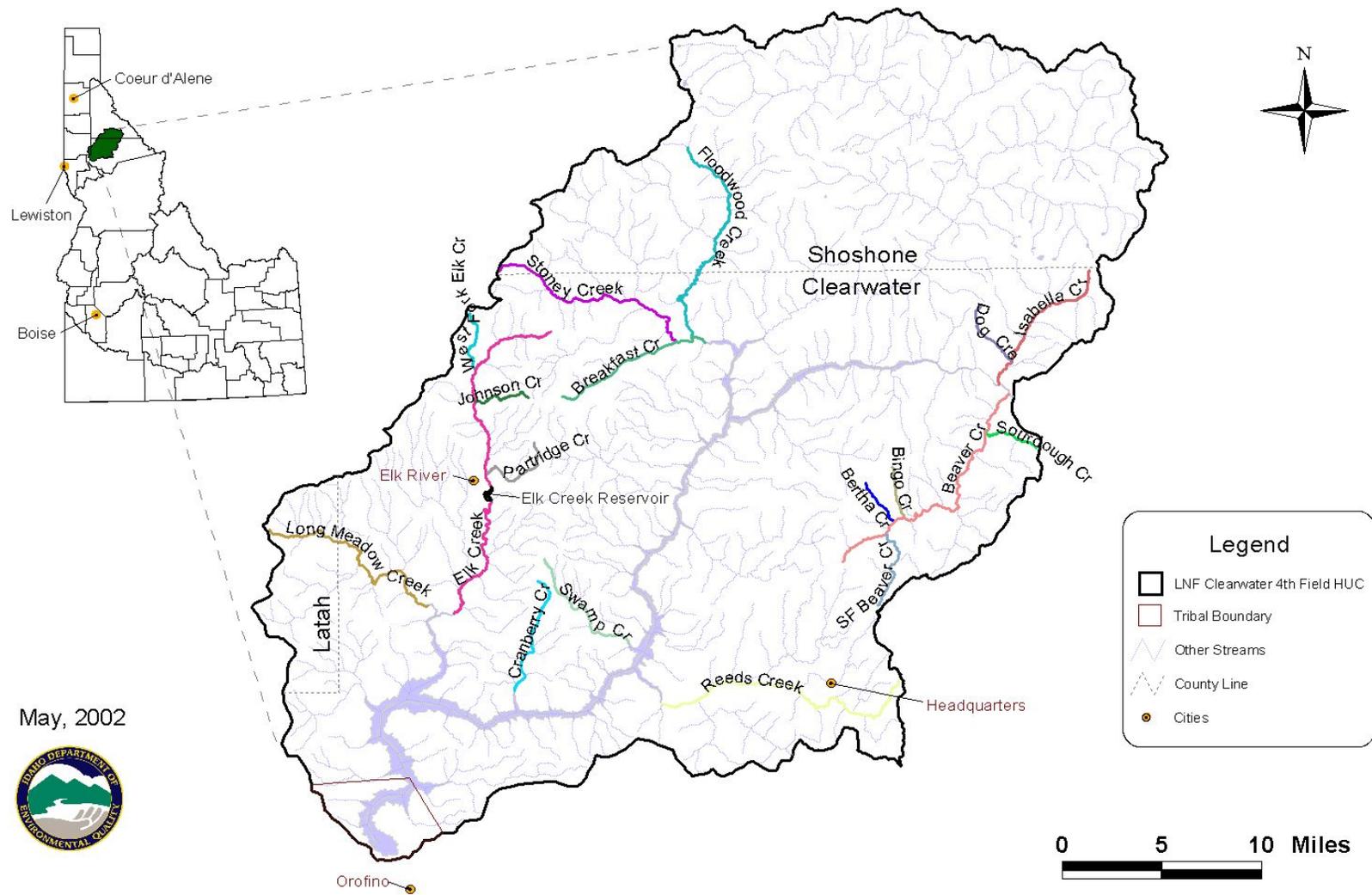
² NRCS =National Resource Conservation Service

Geology and Soils

The geology for the majority (over 60%) of the basin is a contact zone of schist and gneiss, which is located in the central, north, and northwestern parts of the basin. This contact zone is susceptible to erosional processes resulting in a high occurrence of mass failures. Based on the best available data collected, the basin has a density of 0.26 landslides per square mile.

The soils derived from metasedimentary rocks generally weather to finer textured soils with varying amounts of course fragments. Granitics weather rapidly to grus, which are sandy and excessively well drained in composition. Basalt rock has a tendency to weather into large cobble size material. Soils from the contact zone exhibit considerable structural and weathering variability due to the different pressure and temperatures the parent rocks were subject to. These contact areas tend to result in areas with a higher percentage of mass failures. In most of the basin the soils include a layer of ash from the explosion of Mount Mazama that can be up to 20 inches thick. This layer of volcanic ash contributes substantially to the water and nutrient holding capacity of the soils and is the significant reason for the high productivity of the soils in the LNFCRS. This ash has been eroded primary on south to west facing slopes and in areas denuded by fire.

Map A. Location of the Lower North Fork Clearwater River Subbasin, Hydrological Unit 17060308.



Plan Linkage to Beneficial Uses

All the waterbodies within the LNF Clearwater Sub-basin have salmonid spawning, aquatic cold water, and primary contact recreation or secondary contact recreation as existing or designated beneficial uses. Fish species found in this sub-basin include: steelhead, bull trout, rainbow, west slope cutthroat, brook trout, kokanie, and white fish as well as many other non-game fish. Beneficial use status calls generated from WBAG II for all of the nineteen streams within the sub-basin determined that there were seven streams that did not meet “full support”. Project implementation efforts will focus on these specific streams. WBAG II is a guidance document intended to determine the beneficial use support of a water body, provide descriptive information about the water body, and determine the degree of biological integrity of a waterbody. Its primary purpose is for 303(d) listing and 305(b) reporting.

Forest Practices

Under the 1972 Clean Water Act, Congress authorized states to control nonpoint sources of pollution through the implementation of Best Management Practices (BMPs). A BMP is defined as a measure determined to be the most effective and practical means of preventing or reducing pollution inputs from point or nonpoint sources in order to achieve water quality goals. Idaho’s forestry BMPs are included in the Idaho Forest Practices Act, Title 38, Chapter 13 Idaho Code, passed by the legislature in 1974. The Act and associated administrative rules have been updated on several occasions since that time. The FPA is designed to assure the continuous growing and harvesting of forest tree species and to protect and maintain the forest soil, air, water resources, wildlife and aquatic habitat. FPA rules address timber harvesting practices, forest road construction and maintenance, forest tree residual stocking and reforestation, use of chemicals, and the management of slash and the use of prescribed fire.

The Idaho Water Quality Standards and Waste Water Treatment Requirements, Title 39, Chapter 1, Idaho Code, reference the Forest Practices rules as the approved BMPs for silvicultural activities. The Idaho Department of Lands is the designated state agency responsible for administering and enforcing the FPA on all forestlands in the state. On federal lands, the FPA must be met or exceeded. Generally, additional regulatory and administrative review requirements under NFMA and NEPA result in practices that exceed FPA minimum standards.

Provisions are also included within the FPA to address water quality impacts across the drainages. In 1991, the FPA was amended to include provisions for minimizing watershed impacts resulting from cumulative effects of multiple forest practices. The Idaho Cumulative Watershed Effects (CWE) process includes assessing erosion hazards, canopy closure, stream temperature, hydrology, sediment delivery, channel stability, beneficial uses and nutrients. The CWE process provides a broad scale watershed assessment that determines if water quality problems exist and what should be done to mitigate those problems. This is done on a cooperative approach with affected landowners through development of site specific forestry BMPs. CWE data was a primary tool used in development of the TMDL and this plan.

Agriculture and Grazing

Numerous units of state and federal government have authorities, roles and responsibilities that play a part in the control and management of nonpoint source pollution, originating from agricultural activities of surface and ground waters of Idaho. The Idaho Soil Conservation Commission (SCC) is the designated state agency providing guidance and program implementation for private and state agricultural land use activities. This includes all agriculture and grazing activities. They are also instrumental in the development of the agricultural component of the TMDL implementation plans with the help of local conservation districts and watershed advisory groups. The SCC provides technical assistance to the Clearwater Soil and Water Conservation District (CSWCD) in order to effectively implement local conservation programs. The LNFCR Watershed Advisory group also provides guidance and advice on natural resource issues in the watershed.

Idaho uses the Agricultural Pollution Abatement Plan (Ag Plan), which was recently revised in response to Section 208 of the federal Clean Water Act (PL 92-500). This plan represents the agricultural portion of the State Water Quality Management Plan. This Ag Plan builds on the foundation laid specifically by the Idaho Nonpoint Source Management Plan (DEQ 1999), which sets goals and provides guidance for the management of all nonpoint source related activities throughout the state.

An important part of the Ag Plan is the evaluation of applied best management practices (BMPs). Water pollution reductions and beneficial use improvements achieved through application of BMPs are detected through monitoring and evaluation. When water quality goals are not achieved, monitoring and evaluation are used to determine the need for new or modified BMPs. BMP effectiveness evaluations are conducted by the SCC at the field level to determine adequacy of installation of selected BMPs, consistency of operation maintenance, and relative effectiveness in reducing water quality impacts.

County Roads

The major portion of county road within the Lower Elk Creek drainage encompasses 21 miles of Dent Road running from the Dent Bridge at Dworshak Reservoir to the town of Elk River. The Clearwater Highway District has the task of maintaining this road. Although no direct funding from the EPA 319 Grant Fund will be provided in Phase I funding for 2004, the highway district has an aggressive road maintenance plan for road restoration efforts. Funding will be available in 2005 if Phase II 319 funding is approved

Their own staff monitors all roadwork, culvert installation and upgrades, roadside seeding, and all other county maintenance projects. The successes of these BMPs are measured by the amount of sediment removed from a particular sediment trap or road ditch. All construction projects are measured for sustainability and effectiveness. Highway District personnel regularly drive the roads and inventory problem areas for future repairs.

City of Elk River

Elk River's only point source pollutant is the wastewater treatment plant (WWTP), which discharges into Elk Creek. This WWTP is regulated by the National Pollution Discharge Elimination System (NPDES), and follows strict monitoring parameters.

Pollutants and Loads

Within the LNFCRS (HUC #17060308) there are 19 waterbodies on the 1998 303(d) list: Beaver Creek, South Fork Beaver Creek, Bertha Creek, Bingo Creek, Breakfast Creek, Cranberry Creek, Dog Creek, Elk Creek, West Fork Elk Creek, Elk Creek Reservoir, Floodwood Creek, Isabella Creek, Johnson Creek, Long Meadow Creek, Partridge Creek, Reeds Creek, Sourdough Creek, Stony Creek, and Swamp Creek. Most of these streams are listed because they did not meet CNF Plan Sediment Standards (CNF 1992) or because they were listed as impaired in *The 1992 Idaho Water Quality Status Report*, Appendix D (DEQ 1992) as being impaired. All the waterbodies have salmonid spawning, aquatic cold water, and primary contact recreation or secondary contact recreation as existing or designated beneficial uses. Map B shows the watershed boundaries of all 303(d)-listed streams and their geographical locations within the LNFCRS.

Table 2 displays the streams for which TMDLs were written, their pollutants, source and loads. The majority of the information used to determine the level of impairment was from the CNF, IDL, and the Idaho Department of Environmental Quality (DEQ). Based on existing information and data, a monitoring plan was developed to fill in the data gaps. Once all the data were in place, an analysis was completed on each of the 303(d) waterbodies. After the analysis, six sediment, four temperature, and two bacteria TMDLs were written.

The pollutants in the LNFCRS are mainly from nonpoint sources, as the only point source is the wastewater treatment plant in Elk River. For sediment, the main sources are background, roads, mass failures, and streambank and riparian area erosion. For bacteria the main sources are cattle and other livestock, wildlife, and humans. For temperature the source is solar radiation. Nutrients and dissolved oxygen (DO) were also listed as pollutants of concern on the 1998 303(d) list (DEQ1999); however, after analyzing the data, these pollutants were determine to not be impairing any beneficial uses.

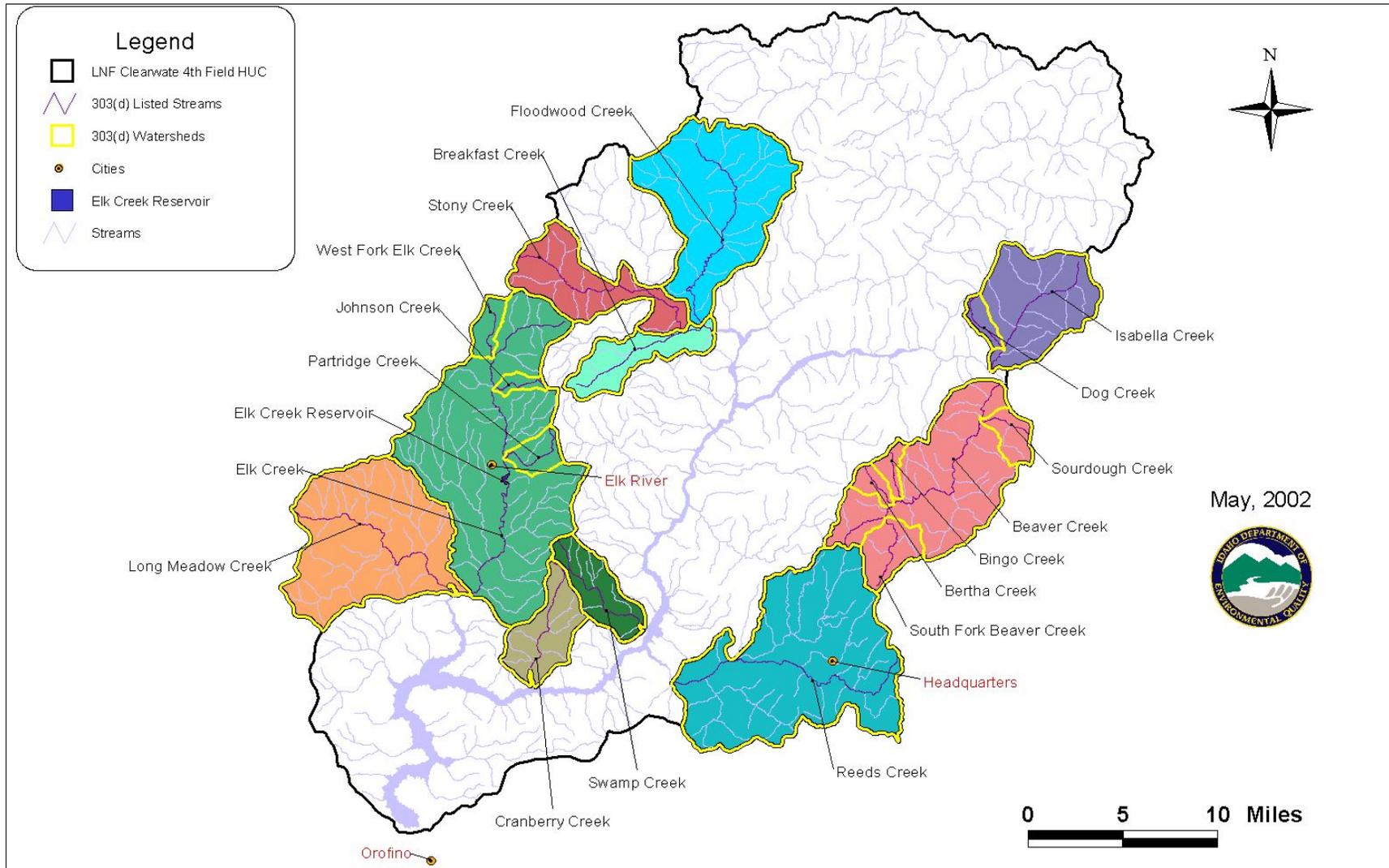
Reference watersheds, or desired conditions in other watersheds, were used to determine the loading capacities for the sediment TMDLs, which are based on the state sediment standards. Temperature TMDLs were based on the state standards and the load allocations and reductions were based on the Cumulative Watershed Effects (CWE) temperature analysis. The loading capacities for the bacteria TMDLs were based on state numeric standards.

Table 2. Streams, Pollutants, Loads for TMDL Streams

Stream	Pollutant	Source	Load Allocation (tons/yr)	Load Reduction (tons/yr)	Time Frame (years)
Breakfast	Sediment	Roads	434.5	395.5	5
		Mass Failures	75	298	5
Cranberry	Sediment	Roads	161.5	56.5	5
		Mass Failures	1.5	3.5	5
		Bank Erosion	25	25	5
	Bacteria	Cattle, wildlife, people	5.1 x10 ⁸ <i>E. coli</i> organisms/100 ml/day	2.5 x10 ⁸ <i>E. coli</i> organisms/100 ml/day	5
	Temperature*				10
Elk-lower	Temperature*				10
Long Meadow	Sediment	Roads	674	1,691	5
		Mass Failures	27	241	5
		Bank Erosion	185	185	5
	Bacteria	Cattle, Wildlife, People (LM2)	5.5 x10 ⁹ <i>E. coli</i> organisms/100 ml/day	2.1 x10 ¹⁰ <i>E. coli</i> organisms/100 ml/day	5
		Cattle, Wildlife, People (LM4)	1.2 x10 ⁹ <i>E. coli</i> organisms/100 ml/day	2.2 x10 ⁹ <i>E. coli</i> organisms/100 ml/day	5
	Temperature*				10
Partridge	Sediment	Bank Erosion	97.5	97.5	5
		Roads	13.5	0.3	5
Reeds	Sediment	Roads	1799	784	5
		Mass Failures	208	256	5
Swamp	Sediment	Roads	161	256.5	5
		Mass Failures	2.3	14.7	5
		Bank Erosion	32.5	32.5	5
	Temperature*				10

* Due to the complex nature of temperature load allocations, they are not included in this table. Refer to Appendix D of the LNFCRS TMDL.

Map B. Geographical Location of the 303(d)-listed waterbodies and watersheds.



General Treatments

The projects will focus on implementing BMPs aimed at reducing the pollutant loadings for sediment, temperature, and bacteria that are detailed in the LNF Clearwater TMDL Subbasin Assessment. These BMPs will consist of road obliteration, road abandonment, road reconstruction and/or improvements and other pertinent BMPs to help reduce or eliminate sediment transport to receiving waters. Other BMPs for temperature and bacteria reductions will include: better management of timber harvesting as related to temperature, vegetative plantings along stream courses, and more site specific grazing management in riparian areas. Efforts will be focused on, but are not limited to, seven of the nineteen 303 (d) listed streams within this subbasin.

Sediment

Because of the large percent of forestland (96%) in the project area, the majority of the needed BMPs will be related to the vast network of road systems. The LNFCRS encompasses over a million square miles and as such, has a very complex road system consisting of 5,800.3 miles of roads in 733,085 acres. The major sources of sediment in the LNFCRS considered significant for this assessment are natural background, roads, mass failures, in-stream channel erosion, and grazing activities.

The following projects/practices are planned to reduce sediment loads:

- Road obliteration and abandonment
- Road reconstruction
- Gate installation
- Ford rocking
- Fill slope removal and stabilization
- Road rocking
- Installation of road drainage
- Revegetation of exposed soils
- Culvert removal or replacement
- Riparian plantings
- Temporary riparian fencing
- Large woody debris placement
- Pond construction

Bacteria

The IDL, Potlatch Corporation, and the CNF have cooperative agreements regarding grazing allotments on their lands in the central and southern portions of the LNFCRS. Grazing impacts have occurred in the Long Meadow and Cranberry Creek watersheds. Impacts include destruction or removal of riparian vegetation, increased sedimentation levels to the streams, and fecal material deposition in or near waterways. Elevated E-Coli bacteria levels were present in these two watersheds based on 2001 field monitoring analysis.

The following allotments are located within these two watersheds:

Round Creek Allotment – Long Meadow Creek Watershed - 340 AUMs

Swamp Creek Allotment – Swamp, Cranberry, Cedar Creek Watersheds –1350 AUMs

Recreational activities are also a problem within these and other watersheds within the subbasin. Recreational activities include fishing, hunting, camping, boating, snowmobiling, downhill and cross country skiing, four-wheeling, kayaking, canoeing, rafting, swimming, water-skiing, mountain biking, berry picking, mushroom hunting, wildlife and scenery viewing, trapping, motorcycling, hiking, photography, driving, and sight seeing historic areas of interest. The CNF maintains several campgrounds and many other unofficial campgrounds are located on CNF, IDL, and Potlatch Corporation lands. The Beaver Creek and Elk Creek watersheds are some of the more popular camping and outdoor recreational destinations.

With this amount of human activity joined together with livestock grazing, there is concern for continued elevated E-Coli bacteria build-up. There is a need to quantify bacteria loadings to the watersheds in the form of bacteria sampling at four key areas: constructed ponds (used for fire suppression and livestock watering), campsites, meadow areas where livestock congregate, and a few private home sites. Other sampling sites will be evaluated also.

Activities planned for 2004 and 2005 in these two watersheds will consist of:

- evaluate E-coli bacteria loading among the four key areas listed above and other selected areas
- implement BMPs for off-site watering, riparian fencing, and stream crossings
- evaluate recreational sites for water quality impairments and provide solutions

Temperature

Temperature reduction efforts are a management goal that is not easily met in the short term. The USFS, IDL, and Potlatch Corporation will address temperature TMDL load allocations. In adhering to the rules of the Forest Practices Act, timber managers implement site specific BMPs to:

- limit timber harvested within Class I and II Stream Protection Zones
- plant willows along Class I streams when conifers are absent
- use partial cut silvicultural prescriptions to maintain shade inside the Stream Protection Zones
- Stream Protection Zones currently growing trees will be managed to provide shade and LOD recruitment for the Class I and II streams
- Meet stream canopy closure targets of IDLs Cumulative Watershed Effects Process

Proposed Site Specific Implementation Projects

Proposed Site Specific Implementation Projects or perhaps better known as Site Specific Best Management Practices (SSBMPs) for the LNFCR TMDL Implementation plan include those specific projects and practices or approaches that will be implemented by the various landowners in the watershed. These landowners include: the Idaho Department of Lands (IDL), Potlatch Corporation, and the United States Forest Service, along with small private landowners. Each landowner's list of SSBMP or approach is as follows.

Proposed Site Specific Best Management Practices for IDL

Site Specific Best Management Practices (SSBMPs) for the LNFCR watershed include targets previously identified by CWE assessments that include: mass failures, management problems, road segments with high scores, and stream segments with high CWE canopy closure/stream temperature ratings. Other implementation projects not specifically identified by CWE that may be associated with forest activities such as timber sales would also be included as SSBMPs in the implementation plan and account for pollutant load reduction.

Repair of CWE identified mass failures, management problems, and road segments with high scores will reduce sediment delivery to streams. While temperature reduction efforts will concentrate on stream segments with high CWE canopy closure/stream temperature ratings. Timber managers and/or technical specialists should field review each stream segment rated high and follow the decision process outlined in Figure 1.

Eight stream segments in Cranberry Creek, five stream segments each in both Swamp and Long Meadow Creeks, and two stream segments in Lower Elk Creek with high CWE canopy closure/stream temperature ratings on State of Idaho Endowment Lands will be field reviewed in the summer of 2004 by IDL Ponderosa and Clearwater Area personnel. The field review will utilize professional judgment to determine if the target canopy is achievable, and whether an active or passive approach to restoring canopy closure is appropriate.

In the LNFCR watershed CWE identified mass failures on State of Idaho Endowment Land to be mitigated for sediment are listed on Table 3 and shown on Map C. These mass failures are within the Breakfast Creek, Cranberry Creek, Swamp Creek, and Reeds Creek sub-watersheds and will be mitigated by either the St. Joe, Clearwater, or Ponderosa IDL Areas depending on the location of the mass failure. Mitigation of these mass failures will result in sediment load reduction required by the TMDL.

CWE identified management problems on State of Idaho Endowment Land to be mitigated for sediment are listed on Table 4 and shown on Map D. These management problems are within the Breakfast Creek, Cranberry Creek, and Swamp Creek sub-watersheds and will be mitigated by either the St. Joe, Clearwater, or Ponderosa IDL Areas depending on the location of the management problem. Mitigation of these mass failures will result in sediment load reduction required by the TMDL.

Two road segments with high CWE scores were identified in the Breakfast Creek and the Reeds Creek sub-watersheds; both segments have been repaired or are slated for repair under the 2005 319 grant proposal (Appendix A1).

Some of the CWE identified mass failures and management problems on State of Idaho Endowment Lands have already been repaired while others are scheduled for repair under the 2004 or 2005 Nonpoint Source 319 Grant proposals. Other mass failures and management problems, or roads will be repaired as part of present or future timber sales. An additional number of proposed SSBMPs are identified in the 2004 and 2005 Nonpoint Source 319 Grant proposal; these SSBMPs were not identified by a CWE assessment or on an IDL timber sale.

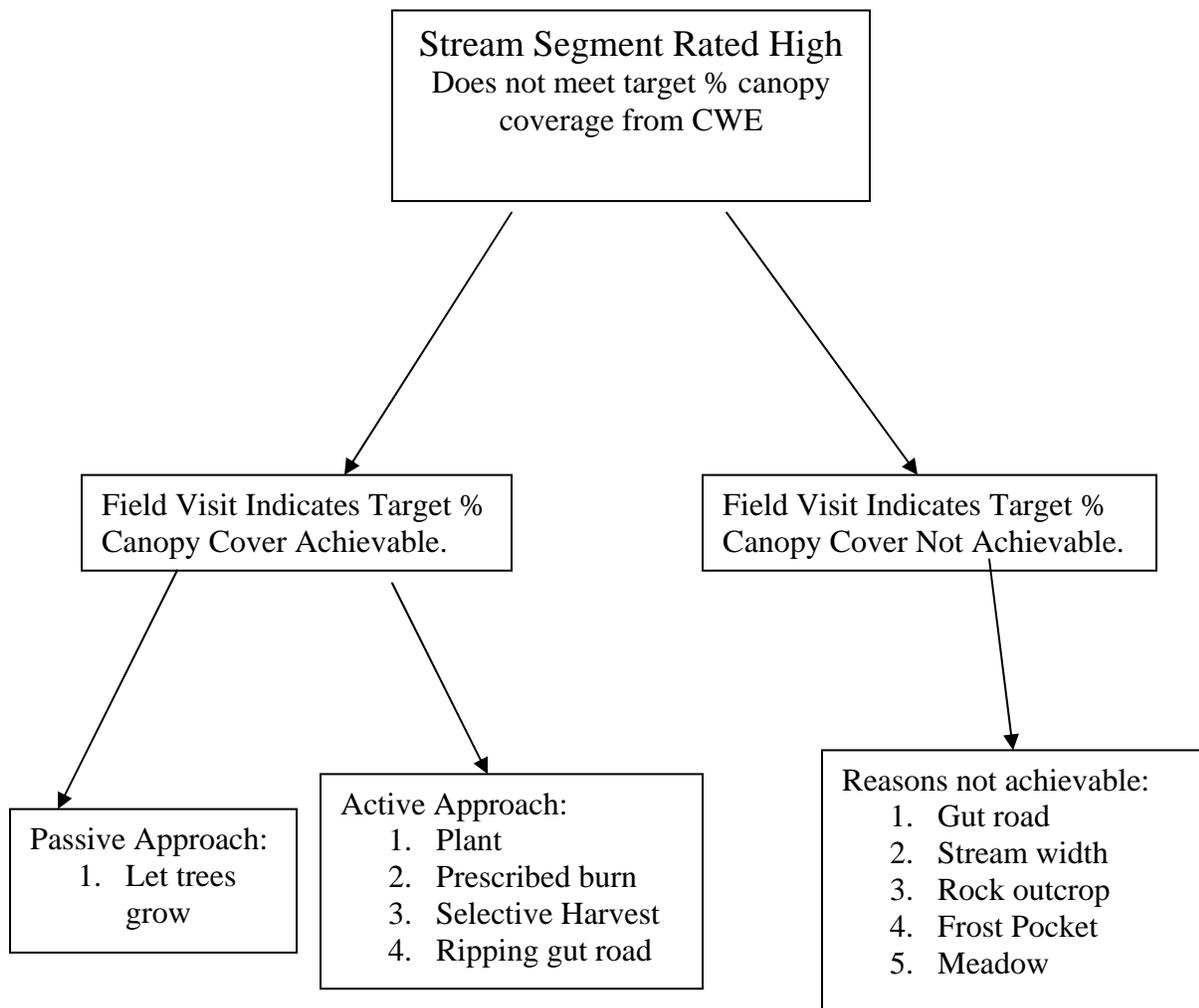


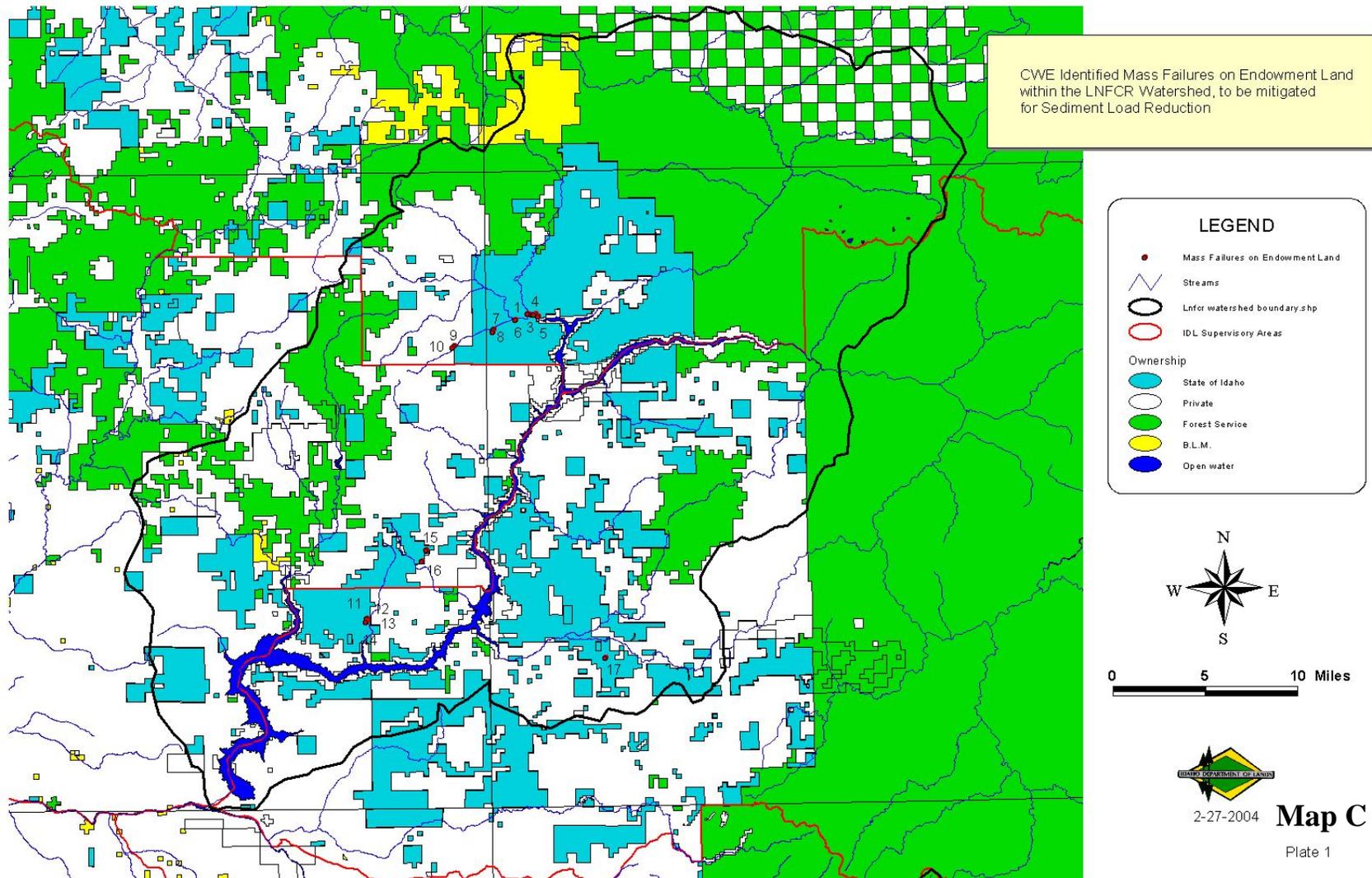
Figure 1. Canopy Closure/Stream Temperature Decision Tree.

CWE Identified Mass Failures on State of Idaho Endowment Land In the LNFCR

CWE Mass Failure Number	Failure Type	Landslide Volume Estimate (cu yds)	Percent Delivery	Watershed Location	Longitude	Latitude
1	Fill Slope	40	65	Breakfast Creek	-115.952	46.888
2	Cut & Fill Slope	100	40	Breakfast Creek	-115.943	46.888
3	Fill Slope	100	99	Breakfast Creek	-115.947	46.887
4	Fill Slope	100	99	Breakfast Creek	-115.945	46.887
5	Fill Slope	100	65	Breakfast Creek	-115.940	46.886
6	Fill Slope	40	40	Breakfast Creek	-115.966	46.883
7	Cut & Fill Slope	100	90	Breakfast Creek	-115.991	46.876
8	Cut & Fill Slope	20	40	Breakfast Creek	-115.992	46.874
9	Cut Slope	20	20	Breakfast Creek	-116.036	46.863
10	Fill Slope	20	65	Breakfast Creek	-116.038	46.862
11	Fill Slope	20	20	Cranberry Creek	-116.139	46.650
12	Fill Slope	20	20	Cranberry Creek	-116.139	46.650
13	Cut Slope	20	5	Cranberry Creek	-116.139	46.648
14	Cut Slope	20	5	Cranberry Creek	-116.140	46.647
15	Cut Slope	10	20	Swamp Creek	-116.070	46.703
16	Fill Slope	9	5	Swamp Creek	-116.075	46.694
17	Fill Slope	20	5	Reeds Creek	-115.869	46.617

Table 3

Map C: CWE Identified Mass Failures

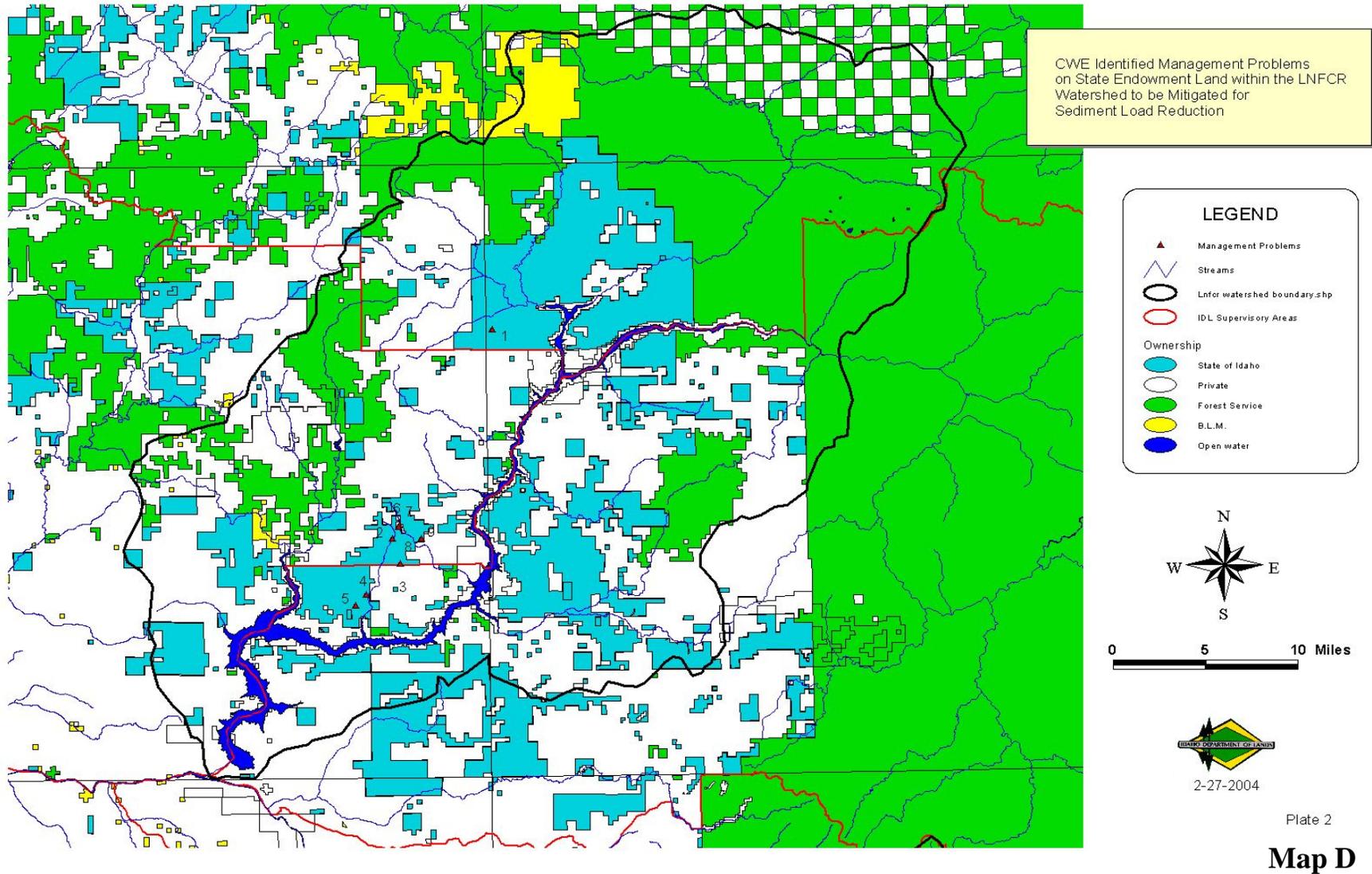


CWE Identified Management Problems on State of Idaho Endowment Land in the LNFCR

CWE Management Problem Number	Management Problem Type	Watershed Location	Year Identified	Longitude	Latitude
1	Culvert Problem	Breakfast Creek	1999	-115.993	46.865
2	Culvert Problem	Cranberry Creek	1999	-116.109	46.695
3	Culvert Problem	Cranberry Creek	1999	-116.101	46.675
4	Culvert Problem	Cranberry Creek	1999	-116.140	46.650
5	Culvert Problem	Cranberry Creek	1999	-116.152	46.641
6	Other	Swamp Creek	1999	-116.101	46.706
7	Culvert Problem	Swamp Creek	1999	-116.101	46.706
8	Culvert Problem	Swamp Creek	1999	-116.102	46.705
9	Culvert Problem	Swamp Creek	1999	-116.076	46.695

Table 4

Map D: CWE Identified Management Problems on Endowment Lands



Potlatch Corporation Approach to Site Specific Implementation Projects

Sediment

Potlatch is working toward completion of a comprehensive transportation plan for the ownership. This plan includes long range paper plans, annual on the ground layout and construction as well as a scheduled, periodic in-house road assessment of each landscape. Potlatch will address sediment TMDL's in several ways:

1. In-house road assessments. Periodically, on-the-ground assessments will be made on the watersheds listed above by the Palouse Area road engineer or his representative. This assessment will identify problem situations on the Potlatch road systems within these watersheds. The data gathered will become the basis for the annual road maintenance program to be carried out. The goal of these assessments is to take a proactive approach to developing an annual road maintenance program and the benefit will be a reduction in sediment transported from the road system to the streams.
2. Barriers and gates are found on many of Potlatch's roads. These are installed to control the access to the use of these roads and reduce the potential for sediment reaching the streams.
3. During 2001, following the CWE publication for the Long Meadow watershed, Potlatch addressed many of areas of concern regarding sediment identified in the CWE document. The activities included unplugging and cleaning culverts to major slump and slide repair and removal. The sites are listed on the spreadsheet.
4. In 2004 Potlatch requested funds through the 319 grant process to help work on several road abandonment and obliteration projects during 2006 and 2007. Abandonment projects will be defined as pulling culverts, slide repair if needed, and straw mulching and seeding if necessary. Obliteration projects will be removing the road entirely and pulling the road back to slope, followed by straw mulching and grass seeding.
5. Potlatch will follow the FPA rules and regulations. These rules specify protection measures needed to minimize impacts from land management activities including those that may cause sediment.
6. Annually, Potlatch along with other landowners meet with the livestock operators holding leases in cooperative grazing allotments. These allotments have full-time riders and they are made aware of concerns regarding cattle and sedimentation problems that they can create such as stream crossings and streambank degradation. The riders work to minimize these problems.
7. In May 2004, Potlatch will implement a Public Use Policy on company lands. Parts of the policy related to reducing sedimentation is prohibiting hill climbing by ATV's and motorcycles. Also, mud-bogging is prohibited. Enforcement of this policy should reduce sediment into the streams.

Temperature

Potlatch maintains a stream identification layer in the GIS data base. Class I and II streams are designated and most Class I streams are stands with at least a 75 foot SPZ delineated on the map base and on the ground, when necessary. State law (FPA) specifies SPZ width and treatment. Potlatch internal guidelines on riparian stand management exceed state law for all fish bearing streams on Potlatch ownership. Potlatch will address temperature TMDL's in several ways:

1. Potlatch will manage Class I and II SPZ's as per the FPA rules and regulations regarding temperature. In addition, Potlatch will take reasonable and prudent actions to supplement FPA. Such as:
 - Along Class I stream, Potlatch can favor retention of trees closer to the stream that are most likely to provide shade. Along Class II streams, there will be appropriate efforts to retain as much brush and sub. merch. as possible along the stream. Also efforts will be made to reduce fire intensity in the SPZ.
2. Annual allotment grazing meetings with operators will emphasize minimal grazing within SPZ's to reduce damage to shading vegetation.

In some cases, the proposed action plan will be to let the current tree stands grow, limit harvest, create shade and subsequently reduce water temperatures.

Bacteria

Potlatch will address bacteria TMDL's in two ways:

1. Again through the annual grazing allotment meetings the operators will be required to minimize the cattle activity in the SPZ's. This can be accomplished by:
 - a. Full time rider to make sure cattle are where they should be.
 - b. Salting practices which located the salt out of the SPZ's. These locations will be mapped and ground-checked by the landowners.
 - c. No additional AU's will be allowed on the allotment until the bacteria TMDL's are met.
2. The Public Use Policy can be a tool in meeting the bacteria TMDL. Camping locations are to be no closer to than 25 feet of any stream bank or open water. This policy has on-the-ground enforcement which should make it effective.

US Forest Service Best Management Practices Implementation

The Clearwater National Forest uses INFISH standards and guidelines for management activities. INFISH is the Inland Native Fish Strategy incorporated into the Forest Plan. INFISH has riparian Management Objectives (RMOs) related to water temperature, large woody debris, bank stability, width/depth ratios, pool frequencies, and lower bank angle. The Riparian Habitat Conservation Areas vary depending on whether the water body is fish-bearing (300 feet), permanently flowing non-fish bearing (150 feet), ponds or wetlands greater than one acre (150 feet), or seasonally flowing or wetlands less than one acre (50 feet, 100 feet in a priority watershed). Activities that occur on federal lands have management standards. Timber harvest,

for example, which includes firewood cutting, is not allowed within the RHCA except for catastrophic events. Road construction includes crossings. Facilities are designed to not retard the attainment of RMOs or have adverse effects on inland native fish. Anytime existing activities are in place and not meeting the RMOs, they are to be modified to meet the RMOs.

All harvest units have the INFISH buffers, so existing shade and woody debris are retained. Roads with landslide problems are identified for decommissioning to reduce sediment introduction to streams. Heavily traveled roads are graveled and put on a frequent maintenance schedule to reduce sediment production. Most roads reviewed on a once-per-three-year schedule.

Completed Site Specific Best Management Practices

Since CWE assessments were completed in 1999, the various landowners have completed a number of repairs within the LNFCR sub-watersheds either as a part of a timber sale or through a road maintenance project. These SSBMPs are listed in Appendix B. These SSBMPs account for a share of the pollutant load reduction required by the TMDL.

See Appendix A1 – EPA 319 Clean Water Act Grant Funded Projects

See Appendix A2 – All Other Agency Funded Projects

See Appendix B – Completed Site Specific Best Management Practices

Other Programs

There are many natural resource based programs available for non-industrial private landowners to help defray the cost of implementing BMPs necessary for the improvement of water quality. However, the LNFCRS has a very low percentage of these landowners (< 3%).

The programs available for their assistance includes various state and federal programs administered by IDL, IDEQ, ISCC, IDFG, NRCS, FSA, USFWS, and others.

The majority of the land ownership is split in thirds between the USFS, IDL, and Potlatch Corporation. There are no sustainable cost-share programs available to these entities for help. They mainly rely on their respective annual maintenance budget and contract support maintenance from timber sales. The USFS occasionally uses Farm Bill dollars to fund small community projects. IDL has received a one time funding allocation for a MRS (Multi-Resource Stewardship Program), which is a spin-off from the SIP Program (Stewardship Incentive Program) for forestry.

In addition to programs having their origins in federal law, Potlatch Corporation has aggressively pursued third party” forest certification” under the Sustainable Forestry Initiative; International Standards Organization, Environmental Management System; and Forest Stewardship Council.

Generally these programs require development and implementation of programs and processes to ensure sustainable forestry is practiced and high environmental standards are met. These programs are validated by third party audits. Potlatch Corporation also plans to eventually include lands in the drainage in the Forest Legacy Program, thereby ensuring these lands remain in a forested condition into perpetuity.

Organizational Information

With the completion of the LNF Clearwater TMDL, all of the major agency and private landowners have expressed an interest in completing necessary watershed restoration efforts. A multitude of coordinated resources are involved in these efforts including EPA, USDA, USFS, ACOE, as well as Idaho state agencies IDF&G, ISDA, SCC, IDL, and DEQ. Also involved with these efforts have been the City of Elk River, Clearwater Soil and Water Conservation District, Clearwater Highway District, Potlatch Corporation, the Nez Perce Tribe, Palouse-Clearwater Environmental Institute (PCEI) and special interest groups and individuals.

The Watershed Advisory Group of the Lower North Fork Clearwater River Subbasin is seeking concurrence from DEQ for this plan. The entities involved with the implementation strategies of this plan are:

- USFS
- IDL
- Potlatch Corporation
- ISCC
- PCEI
- Clearwater Soil and Water Conservation District (CSWCD)
- Clearwater Highway District
- Non-industrial private landowners

The Clearwater Soil and Water Conservation District will serve as the administrator for the 319 Clean Water Grant funds allocated to this project. The CSWCD has a proven track record for efficient administration of past 319 Grant Projects. All implementation efforts completed by non-industrial private landowners will follow strict NRCS Standards and Specifications on engineering and layout. All other implementation efforts performed by the USFS, IDL, and Potlatch Corporation, and the Clearwater Highway District, having to do with timber, timber harvesting, road building and repair, and any decommissioning of roads have their own strict engineering guidelines that they follow, as well as adhering to Forest Practice BMP guidelines.

As part of the reporting procedure to IDEQ for 319 grant funds, the CSWCD will produce quarterly reports complete with photo documentation of “before” and “after” photos of project undertakings. Semi-annual reports will also be required of the administrating agency.

All other non cost-shared BMP implementation efforts will be taken care of between the various agencies mentioned above.

Public Involvement and Environmental Stewardship

Although forestry is the predominant land resource within the subbasin, which is managed for timber production, recreation and livestock grazing also play a large role in this area. This brings together a wide variety of environmental partners. By becoming active participants in the development of best management practices, the various entities, landowners, and visitors to the forest will become more aware of management practices that affect the land resources and water quality. DEQ and the CWSCD played a lead role in organizing public meetings and soliciting public input to help develop this plan under the auspices of a WAG.

Good Science

Collectively between all the various agencies and entities that own and/or manage the resources within the LNFCRS there is a wealth of expertise. There is an excellent track record of many years of successful resource management techniques that have been implemented throughout the region. As these BMPs are implemented during this project, all of the widely accepted and adopted techniques will ensure a successful completion of the goals of the LNFCRS TMDL Implementation Plan.

Public Awareness

The WAG recognizes projects stemming from this plan could generate considerable interest, especially with the general public. A wide variety of recreational activities are located within the subbasin and the economic reliance of local communities on these recreational activities is important. Grazing issues within the subbasin will also need to be addressed in an accepted manner. The cohesiveness of enthusiasm shown among all of the landowners and resource managers who are working together to implement this TMDL Implementation Plan will surely set a good example for everyone.

Efforts will be made by the WAG to keep the general public aware of the changes needed in the subbasin to improve water quality. Through public outreach programs, such as tours, meetings, interpretive signs, and newspaper articles, we hope to get the word out to the public about the importance of protecting our natural resources and improving water quality.

Successful Solutions

From the very start of the TMDL process on the LNFCRS there was complete cooperation among all the various agencies, entities, and non-industrial private landowners. Everyone recognized the need for banding together and work toward a common goal. That goal is to implement the necessary BMPs needed to reduce the pollutant loadings listed in the LNFCRS TMDL, thus improving water quality and reaching the “full support” of the designated beneficial uses.

Plan for Monitoring Results

There are many monitoring techniques and protocols used between the USFS, IDL, Potlatch Corporation, Clearwater Highway District, and the technical support staff representing BMPs implemented by non-industrial private landowners. Idaho State Department of Environmental Quality (IDEQ) also has a monitoring program to determine the status of beneficial uses and to establish existing uses. This program is the Beneficial Use Reconnaissance Program (BURP). The beneficial uses of water in Idaho are defined as any of the various uses of water including, but not limited to, aquatic biota, recreation, water supply, wildlife habitat, and aesthetics. The combined monitoring effort of all these entities, each with their respective protocols, will evaluate the project progress and accomplishments.

Private Landowners

An important part of the Ag Plan is the evaluation of applied best management practices (BMPs). Water pollution reductions and beneficial use improvements achieved through application of BMPs are detected through monitoring and evaluation. When water quality goals are not achieved, monitoring and evaluation are used to determine the need for new or modified BMPs. All BMPs implemented on private land ownership will be evaluated for effectiveness of those BMPs. BMP effectiveness evaluations are conducted by the Idaho Soil Conservation Commission (SCC) at the field level to determine adequacy of installation of selected BMPs, consistency of operation maintenance, and relative effectiveness in reducing water quality impacts. Photo documentation will also be required. This will be accomplished by the technical entity performing the engineering and designs. This may include assistance from ISCC, NRCS, or possibly IASCD support staff.

Clearwater Highway District

All roadwork, culvert installation, roadside seeding, and all other county maintenance projects are monitored by their own staff. The success of these BMPs are measured by the amount of sediment removed from a particular sediment trap or ditch bank. All construction projects are measured for sustainability and effectiveness. They drive the roads regularly and inventory problem areas for future repairs.

Idaho Department of Lands

Idaho's Cumulative Watershed Effects Process (CWE) is an IDL tool that evaluates a variety of conditions related to timber activities on the ground to determine impacts to the environment. The CWE process is a framework for collecting and organizing data on mass failures, surface erosion hazards, stream temperature, watershed canopy conditions, hydrologic risks, sediment production and delivery to a waterway, stream channel stability, and water nutrient conditions. The process relies on the WBAG II beneficial use support determination as the measure of whether or not a stream is water quality impaired. The CWE methodology analyzes data collected from on-the-ground conditions, and determines whether forest practices are creating

“adverse conditions” due to sediment, temperature, nutrients, and/or hydrologic impacts (IDL 2000).

The intent of CWE is to allow forest managers to respond to the CWA when forest practice standards are not being met. Adverse conditions are not defined using the state’s water quality standards but do allow forest managers to pinpoint the condition impacting water quality. CWE is physically conducted in the watershed and the results are an up-to-date, systematic assessment of on-the-ground conditions. When CWE identifies an adverse condition for sediment, temperature, nutrients or hydrologic function, managers and area foresters should investigate that particular area and determine what corrective actions are needed.

IDL conducts a BMP implementation-monitoring program. Funding limitations preclude IDL from conducting rigorous BMP effectiveness monitoring. However, many studies have been conducted that quantitatively demonstrate BMP effectiveness and past FPA audits have demonstrated that if BMPs are properly applied, they are effective at reducing impacts to beneficial uses.

Forest practices in this drainage will be inspected for compliance with the FPA and any other recommended practices. If any unsatisfactory conditions are identified, they will be corrected using IDL standard enforcement procedures as described in the preceding section. If any voluntary BMPs are not met, the landowner operator will not be eligible for any cost-share funds. In addition, provisions exist in the FPA to require operating bonds of repeat or habitual violators of the FPA and IDL has the authority to deny a notification for operators with a current Notice of Violation. The IDL offices in St. Maries (St. Joe), Orofino (Clearwater), and Deary (Ponderosa) will be the offices of record for all inspection reports in these drainages.

In addition to the regular FPA inspection program and follow-up CWE assessment conducted by IDL, the Forest Practices Water Quality Management Plan calls for statewide audits of the application effectiveness of Forest Practices rules.

In addition, the department conducts internal FPA audits on an annual basis. In the past, these audits have demonstrated a very high rate of compliance with standard FPA rules. And the audit process is a key component of the feedback loop mechanism used by the Forest Practices Act Advisory Committee and Idaho State Board of Land Commissioners to evaluate the effectiveness of Idaho forestry BMPs. Selected sales will be audited within these drainages on an annual basis using the established audited protocols.

While CWE produces in the final analysis a pass/fail for each of the pollutant types, the CWE scores derived from the data collected provide a continuous-scale rating of the situation. When a CWE assessment conclusion does not agree with conclusions of the DEQ WBAGII assessment or the 303(d) list, the CWE data can be analyzed to help explain the discordance and arrive at a conclusion about the status and causes of water quality problems (Dechert et al. 2001).

Clearwater National Forest

The CNF uses their Water Balance (WATBAL) model to assist management with decisions regarding allocation of resources. In its forest plan, the CNF states its management goal for water quality is to “manage watersheds, soil resources, and streams to maintain high quality water that meets or exceeds State and Federal water quality standards, and to protect all beneficial uses of the water, which include fisheries, water-based recreation, and public water supplies,” (USFS 1987). In this assessment, WATBAL data helped DEQ evaluate whether a given waterbody was water quality limited.

Other monitoring activities performed by the USFS using various protocols and parameters include:

- stream temperature
- fish data
- flow data

The CNF also conducts internal forest practice BMP audits on an annual basis.

Potlatch Corporation

In an effort to meet FPA requirements and various forest certification standards Potlatch has subscribed to, intensive and regular audits will be conducted annually by third party auditors on Potlatch lands. In addition to programs having their origins in federal law, Potlatch Corporation has aggressively pursued third party “forest certification” under the Sustainable Forestry Initiative; International Standards Organization, Environmental Management System; and Forest Stewardship Council. Generally these programs require development and implementation of programs and processes to ensure sustainable forestry is practiced and high environmental standards are met. These programs are validated by third party audits. Potlatch Corporation also plans to eventually include lands in the drainage in the Forest Legacy Program; thereby ensuring these lands remain in a forested condition into perpetuity.

DEQ BURP Monitoring and WBAG II

BURP is a DEQ water-monitoring program that has been in existence for nearly a decade in the state of Idaho. Each year BURP crews collect biological, chemical, and physical data between the months of July and September. BURP is a good tool to evaluate changes in the environment based on biological changes. BURP data is easily reproducible and a database has been established with this data. Information collected in this BURP will be valuable in future years to evaluate the condition of the water bodies in the state including the LNFCRS. The BURP process collects data on macroinvertebrates, fish, other aquatic life, and stream physical habitat. This data in turn is used to determine whether a water body is supporting its designated beneficial uses.

WBAG II is a guidance document that DEQ uses to determine whether a water body fully supports designated and existing beneficial uses, relying on physical, chemical, and biological parameters typically collected during the BURP process. Data collected outside of DEQ can be used to assist with designated beneficial use calls provided that the data is less than 5 years old and that it meets certain requirements outlined in WBAG II.

All of the monitoring activities specifically related to the LNFCRS will be performed by and funded by each of the above listed entities. However, the LNFCRS WAG will be requesting 319 funds for bacteria analysis within the area of concern listed in the Bacteria TMDL.

REGULATORY PROGRAMS

The federal Clean Water Act (CWA) requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nations waters (33 USC § 1251.101). States and tribes, pursuant to section 303 of the CWA are to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the waters whenever possible. Section 303(d) of the CWA establishes requirements for states and tribes to identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards). States and tribes must periodically publish a priority list of impaired waters, currently every two years. For waters identified on this list, states and tribes must determine if a total maximum daily load (TMDL) for the pollutants, set at a level to achieve water quality standards, is necessary. This document addresses the water bodies in the Lower North Fork Clearwater River Subbasin (LNFCRS) that have been placed on what is known as the “303(d) list.”

Forest Practices

Prior to the harvest of timber a logging operator must notify the Department of Lands of planned timber harvest by filing a Certificate of Compliance and Notification of Forest Practices. This notification form lists the contractor responsible for slash management and the operator responsible for Forest Practices compliance, the landowner and the log purchasers. Fire hazards and basic forest environmental information on streams, soils and slopes are included in the form.

IDL has the authority to enter logging operations, to inspect for compliance with the Fire Hazard Reduction Laws and the FPA. Any time department personnel inspects a logging operation, a report of inspection will be completed that lists satisfactory practices and unsatisfactory rule violations. While most FPA rules are mandatory, application of BMPs resulting from the CWE process are encouraged but not mandatory.

When the department has determined that the operator has violated any provision of the FPA, it shall be considered a violation. If the violation is minor, the operator may only receive an unsatisfactory inspection report. If the unsatisfactory items are corrected in a timely manner, no

Notice of Violation will be issued. A Notice of Violation will be issued for all major infractions or if serious resource damage has occurred or will occur when an operator has multiple minor infractions which are collectively significant or when an operator fails to correct previously noted unsatisfactory conditions.

The Notice of Violation will specify the reason for the violation, any damage or unsatisfactory condition and required repair or mitigation. If the operator corrects the violation, no further action is taken. If an operator fails to correct the Notice of Violation, the department can complete the repair and take civil action to recover repair and legal costs. Provisions also exist to deny an operator the ability to obtain new notifications if an operation is a current violation or the operator can be required to post a bond if it is determined the operator is a repeat or habitual offender of the FPA.

As the department does not have the resources to inspect all logging operations in the area, department personnel work cooperatively with the University of Idaho, industry, environmental groups and other agencies to assist in training private forest landowners and logging operators on appropriate forest management and water quality protection practices. In addition, the Associated Logging Contractors has embarked on an accreditation program for loggers in the State of Idaho. Most purchasers of forest products in this area require that only accredited loggers can sell logs to local mills.

Accreditation is obtained through rigorous initial training and continuing education. Performance standards are verified by follow-up field inspections for compliance with the Forest Practices Act standards.

PLAN FUNDING AND FINANCIAL INCENTIVES

As stated earlier, 96% of the subbasin is forested, owned and managed by the CNF, IDL, and Potlatch Corporation. Their annual budgets allow for most of the land resource maintenance and upgrades needed on their land. Technical assistance will be offered to anyone wishing to participate in the implementation of BMPs designed to improve water quality. The ultimate goal of this project is to reduce the pollutant loadings specified in the TMDL to levels that will meet the “full support” status of the designated beneficial uses. There are no better incentives than that for the major landowners. In addition, nonpoint source 319 grant funds are also being sought to fund specific elements of this plan.

Forest Practices

Under the FPA, the party responsible for conducting the forest practice must meet applicable rules and BMPs. IDL has responsibility to administer and enforce the FPA. The cost of complying with the FPA is born by the operator, landowner, or third party, depending on any contractual agreements that may be in existence. At present, private forest landowners are annually assessed \$.10 per acre for all forestlands and \$.12 per thousand board feet harvested to

help fund IDL administration of the FPA. State endowment lands fund FPA administration out of dedicated funds appropriated for timber sale administration. IDL also has the authority to expend funds out of a rehabilitation account, but this is limited to only those costs associated with the repair of unsatisfactory practices identified in the Notice of Violation process.

Agriculture and Grazing

There are many natural resource based programs available for non-industrial private landowners to help defray the cost of implementing BMPs necessary for the improvement of water quality. However, the LNFCRS has a very low percentage of these landowners (< 3%).

The programs available for their assistance includes various state and federal programs administered by IDL, IDEQ, ISCC, IDFG, NRCS, FSA, USFWS, and others.

The Clearwater Soil and Water Conservation District (CSWCD) applied for and was awarded Nonpoint Source 319 Clean Water Act Grant funds on behalf of the Lower North Fork Clearwater River TMDL Implementation Project. They will serve as the administrator for these funds. The CSWCD has a proven track record for efficient administration of past 319 Grant Projects. All implementation efforts completed by non-industrial private landowners will follow strict NRCS Standards and Specifications on engineering and layout. These completed BMPs will be cost-shared at a 60/40 split cost-share, with 60% of the incurred costs provided by 319 Grant Funds and the remaining 40% provided as match from the various non-industrial private landowners. In the past, the CSWCD acquired matching funds from the State's Water Quality Program for Agriculture (WQPA). The District will again try to secure funding through that program if funding is available. At present, the State is struggling financially.

As part of the reporting procedure to IDEQ for 319 grant funds, the CSWCD will produce quarterly reports complete with photo documentation of "before" and "after" photos of project undertakings. Semi-annual reports will also be required of the administrating agency.

All other non cost-shared BMP implementation efforts will be taken care of between the various agencies mentioned above.

County Roads

The major portion of county road within the Lower Elk Creek drainage encompasses 21 miles of road running from the Dent Bridge at Dwarshak Reservoir to the town of Elk River. The Clearwater Highway District has the task of maintaining this road. Although no direct funding from the EPA 319 Grant Fund will be provided in Phase I funding for 2004, the highway district has an aggressive road maintenance plan for road restoration efforts. Funding will be available in 2005 if Phase II 319 funding is approved. The work scheduled for this stretch of road will cost in excess of \$350,000. The majority of the funding for the Clearwater Highway District comes from highway user funds administered through Clearwater County. Other supplemental funds come from grants, property tax, and temporary funds from the Craig Wyden Act.

City of Elk River

There are no immediate projects scheduled for the City of Elk River in the near future but they recognize the need for a rainy day fund to address any potential water quality problems or needed municipal upgrades and are working toward that goal. The LNF Clearwater River TMDL discussed the need for a ground water study to determine the loading from the settlement ponds via ground water to Elk Creek and Elk Creek Reservoir would provide valuable information.